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VULCANIZATION RESEARCHES.

By B. J. Eaton.

THE *Tropical Agriculturist*, Vol. XLVII, No. 4, October, 1916, contains a short editorial by Mr. T. Petch, Acting Director of Agriculture, Ceylon, and a brief resumé of the vulcanization researches carried out at the Imperial Institute, London, on behalf of the Ceylon Government. Further detailed information is contained in Bulletins 23 and 24 issued by the Department of Agriculture, Ceylon.

This abstract of the work and the results obtained will show that the work done at the Imperial Institute confirms entirely the work which has so far been carried out and published by the Agricultural Department in this country. In connection with the Imperial Institute-Ceylon work, no deductions, however, appear to have been drawn yet as to the causes underlying variability as we have been able to do here.

Before quoting the results of these researches I should like to deal with a statement contained in the editorial and with two statements contained in the resumé of the work referred to above.

Mr. Petch states "the old type of experiment in which many undetermined factors influenced the results was seen to be inadequate and it was recognised that the precise influence of every factor must be determined separately if any advance was to be made."

Surely, this should be the basic principle of all scientific experimental work; otherwise it has no claim to be called either "scientific" or "experimental." Much past work, especially in connection with rubber, has no claim to be considered scientific, because this principle was not recognised.

With regard to the vulcanization researches, among four of the conditions laid down as essential for the success of such work, the writer must disagree to a certain extent with two. They are:

(1). Vulcanization to be conducted under conditions as nearly as possible to those of manufactories; vulcanization in Ceylon would not, therefore, be satisfactory.

(2). Tests to be conducted by an independent and responsible body.

In the case of the first condition, I must disagree with the corollary rather than the axiom. No reasons are given why vulcanization work should not be satisfactory in Ceylon nor why it should not be possible to conduct such work in Ceylon under conditions as nearly as possible to those of manufactories. (A rubber manufactory is actually in existence in the tropics—in Singapore.) The method of dividing the work, as adopted, may suit Ceylon, but that is no argument as to its advantages over any other method—such as the one adopted by the Government and the Agricultural Department in this country, in which the work on the raw rubber and the vulcanized product is carried out completely by the Agricultural Department, in close touch, by correspondence, with the leading manufacturers in Great Britain and the United States of America and with various Dutch workers.

The work carried out by the Agricultural Department here proves definitely that it is a matter of indifference whether the vulcanization researches be carried out in England or in the country of origin of the raw rubber, and the writer would even claim, with regard to the particular researches in question, that the advantages are in favour of the work being carried out in the country of origin of the rubber by the same experimenter or a colleague who prepares the raw samples, because each factor can be traced immediately. We are convinced that many of our own conclusions would have been much more difficult to arrive at, had we not had the experience gained in preparing the raw samples direct from latex and thus knowing their complete life history. A second advantage, which is a minor point in some respects, lies in the economy effected in employing Asiatic labour to a large extent in the experimental work; the writer has found his Malay assistants and intelligent Tamil coolies quite capable, under supervision, of conducting the work of testing and mixing, since the former is more or less automatically recorded and can be checked.

With regard to condition (2) the meaning is somewhat obscure. While agreeing that the tests are preferably carried out by an independent and responsible body, a colonial agricultural department may be considered, in the writer's opinion, to be a body of this description.

Results.

We will now tabulate and discuss the results obtained, as given in the *Tropical Agriculturist*, together with the additional results given in Bulletins 23 and 24. They are as follows:

(1). Acetic acid is on the whole the best coagulant that can be used at present.

(2). Latex allowed to coagulate naturally without the addition of any acid coagulant yields rubber of good quality.

(3). Rubber allowed to remain wet after coagulation (creosote having been added as a preservative) is quick curing and strong.

(4). Washing dry rubber on its arrival in London does not affect the quality.

(5). The addition of creosote does not affect the quality.

(6). Crepe takes longer to vulcanize than plain sheet.

(7). Smoked sheet takes longer to vulcanize than plain sheet; thus smoking retards curing.

(8). Plain sheet is often stronger than crepe and in some cases than smoked sheet.

(9). Smoking would appear in certain cases to affect adversely the strength of the rubber but final conclusions as to this cannot be drawn till samples now under examination have been tested.

(10). Repeatedly passing crepe through rollers does not injure it.

(11). There is little or no difference between thin crepe and thick crepe prepared from dry thin crepe.

(12). It is a matter of indifference, as far as quality goes, whether crepe is air dried, or dried in hot air or vacuo.

(13). Making dry rubber into block or roll does not appreciably affect the quality or rate of cure.

Comments.—Our own work already published on most of these points entirely confirms all of these conclusions. With regard to (1) formic acid and other weak organic acids are suitable substitutes for acetic acid, but not so economical and, secondly, the volatile acids such as acetic and formic acids would be preferable, *cæteris paribus*, to the non-volatile acids such as oxalic, tartaric, citric, etc.

With regard to (2) a number of experiments have been carried out on natural coagulation, especially in closed vessels, which provide optimum conditions for natural coagulation and in the presence of various sugars which assist natural coagulation and the rubber has proved of excellent quality with a tendency to cure faster than acetic acid coagulated samples. As Drs. Gorter and Swart have shown (*vide Agricultural Bulletin*, Vol. V, No. 1, October, 1916), the coagulation in this case is brought about essentially by lactic acid.

With regard to (3) most of our experiments for the last 18 months have been carried out on this type of rubber, (free from creosote however), since a study of this type has been found to yield results of considerable value. Samples prepared in this way on estates, to which creosote was added, showed that the creosote had little or no effect on the changes which take place in such rubber and which cause the acceleration in rate of cure. Phenol (carbolic acid) in dilute solution was found to behave similarly. The writer is of opinion that owing to the large amount of organic matter present, the creosote or phenol has little or no action on the particular fermentation change which takes place.

With respect to (4) this was proved early in our experiments, as was essential, since many samples are received which require washing to remove extraneous matter—*e.g.*, sawdust and chips from the boxes, and, if washing affected dry rubber, the matter would have been a more important one from the point of view of packing. We invariably wash and crepe all samples, except well cleaned rubbers received in the form of crepe.

With regard to (6) we have shown that thin crepe, *cæteris paribus*, is always the slowest curing type of plantation rubber. This, however, does not apply to original thick or blanket crepe. By crepe it must be understood to mean, coagulum which is creped on the day of or the day following coagulation, since we have shown that if the coagulum is kept longer, it cures more rapidly.

It will be seen also that the Imperial Institute results support our own conclusions as to the retardation of cure by smoking (7), although as we have pointed out elsewhere, this retardation is not invariably the case. While the smoke house products of combustion retard vulcanization, certain conditions in the smoke house may actually accelerate vulcanization, so that we may get a balance of factors, causing the differences between smoked and unsmoked sheets to be small and of not much importance. The retardation of cure by smoke is, however, seen in the case of Fine Hard Para, which, containing as it does all the serum constituents, should be rapidly curing, but the action of the smoke in the curing process has had a considerable retarding effect.

The conclusions as to the superior quality of plain sheet compared with crepe and the non superiority of smoked sheet over plain sheet (8) again agrees with our conclusions and with the remarks made by Mr. Williams, of the North British Rubber Company, at the Rubber Congress, London, in 1914, quoted previously by the writer.

Here again, it should be remembered that crepe must mean thin crepe prepared from fresh coagulum. We can, as I have stated before, prepare crepe (thick) equal to and having an even more rapid rate of cure than sheet. We regard to the sometimes deteriorating effect of smoking on sheet (9) we have no definite figures from our own strictly comparative samples, although a number of estate samples support this conclusion ; the deterioration is probably due to excessive temperature in the smoke house.

In (10) the question of over-machining of crepe is dealt with, and here again our own conclusions are confirmed, and previously held ideas are exploded. What one has to distinguish between, is over-machining—*i.e.*, passing a piece of finished thin crepe again through rollers, and the process of rolling the rubber thinner during maceration. As we have shown before, every time a piece of crepe is rolled thinner, something essential to vulcanization is removed, whereas once this limit of thinness is reached, no further change is brought out by machining further.

With regard to (11), although we have carried out no experiments in this respect, except with vacuum-dried thin crepe, (since no thin crepe after drying with the exception of vacuum-dried crepe is now blanketed in this country), we are in agreement, as this might be deduced from the theory advanced by us as to the cause of variability.

With regard to the effect of hot air or vacuum drying on quality (12) we are not entirely in agreement (*vide Agricultural Bulletin*, Vol. III, No. 12, September, 1915), but if the temperature is kept low there should be little or no difference in the case of thin crepe or " wormed " rubber which is the usual type of rubber employed.

The remarks *re* vacuum and hot air drying would not apply to sheet, and as we have already stated (*Journal, Society of Chemical Industry*, Vol. XXXV, No. 13, 15th July, 1916), the rate of drying is a very important factor influencing the rate of cure. Some results on this point will be published shortly; many experiments on this problem, although attention has not been particularly directed to this point, have already been published.

The last conclusion (13) is essentially the same as (11) since block or roll rubber is an exaggerated form of blanketed crepe.

The conversion of wet thin crepe into thick crepe or into rolls, direct from the machine does affect the rate of cure, by accelerating it, as would be expected from our previous work, but the effect is not great, owing to the comparatively low moisture content of thin crepe and the probable removal of more of the essential vulcanizing constituents than from sheet. The rolling together or blocking of wet sheet on the other hand has a very marked effect in accelerating rate of cure. Further information, contained in Bulletins 23 and 24 of the Department of Agriculture, Ceylon, contains the following conclusions :

(1) The addition of formalin to latex considerably increases the time of cure ; ammonia and sodium sulphite had much less effect.

(2) The tensile strength of scrap and clot is low, and the time of vulcanization good.

(3) Hydrofluoric and sulphuric acids slightly retard the rate of coagulation whereas formic acid had no effect.

Our own results with formalin are similar, and we have also shown that formalin has some effect even on dry rubber—the reasons for the effect of formalin are also given by us.

While we have found the quality of lower grades which include scrap, bark shavings and earth rubber always inferior to "first latex" rubbers, this does not always apply to " lump " or " clot " which may be equal to the best and even superior in strength to some first latex rubbers. This depends on the amount of machining—*i.e.*, the thinness of the crepe prepared from such lump and the period the lump remains in this form before being creped.

The retardation of cure produced by the mineral acids has been found by us to be fairly marked, even when minimum quantities were used.

Results obtained at the Imperial Institute on hand-pressed sheet show, as would be expected, in view of our theory, a comparatively rapid rate of cure, since it is almost impossible to hand-press sheet rubber to the same thickness as by machine rolling; the greater rapidity of cure is due to the thickness and slower rate of drying. The greater rapidity of cure of the blanketed crepe made from wet thin crepe, is also due to the slower rate of drying.

MAIN CONCLUSIONS.

As in the work carried out by Dr. Schidrowitz and by us, the main conclusions are that the principal variation in plantation rubber is in rate of vulcanization and that plantation Para rubber when properly vulcanized has satisfactory mechanical properties, the average tensile strength being equal to specimens of best Fine Hard Para.

In the Imperial Institute tests the mixing used is similar to ours while the vulcanizing is carried out at 50 lbs. steam pressure corresponding to a temperature of 147°C while our experiments are carried out at 140°C, so that our times of cure will be longer in each case.

The variation in samples examined at the Imperial Institute is from 38 to 40 minutes, while our variation (apart from rubbers containing special accelerators) has been from about 60 minutes to about 240 minutes. From the experimental point of view, with the special mixing employed, I am of opinion that the lower temperature is preferable, since it allows a greater margin of error in respect to time; the higher the temperature of vulcanization employed, within the limits found suitable, the smaller will be the difference in times of cure between the fastest and slowest curing rubbers, so that it becomes more difficult to detect small differences in rates of cure, due to any specific treatment.

DAMAGE CAUSED BY WILD ELEPHANTS TO AGRICULTURAL PROPERTY.

By B. H. F. Barnard,
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IN recent years complaints have frequently been made to the Government on the subject of the injury caused to property by wild elephants. The complaints have come principally from the owners or managers of rubber plantations, but the damage has not been confined to their estates. Coconut and native cultivation have also suffered to a certain extent. That a very considerable amount of damage has been done is undoubted, but it is equally certain that such damage might have been greatly reduced had the managers of the estates affected taken reasonable precautions to defend their property. Precautions were taken in many cases, but they frequently failed to be effective owing to the fact that their application was too local, and was not continuous. In several instances known to the writer the loudest complaints have been made by owners, who not only have failed to take steps to protect their estates, but who by neglecting to maintain proper cultivation have encouraged the visits of elephants, owing to the fact that land which has been cleared and then allowed to become overgrown affords particularly attractive food to browsing animals.

There is, however, no doubt that much harm has been done on well-managed plantations, particularly during the first few years after opening up. The loss consists not only in the breaking off or uprooting of the young rubber trees, but also in the destruction of fencing, and the consequent damage caused to the trees by deer thus admitted.

It has been suggested that the offending herds might be caught and domesticated, and attempts have from time to time been made to carry out the suggestion, but without much success. These failures have generally been due to lack of organization, and insufficient supervision added to an imperfect knowledge of the details of the country concerned. The capture of elephants in this country is a more difficult matter than it is in countries having more open forest, and it is exceedingly doubtful whether such an undertaking, if organized on a scale sufficiently large to give it a fair chance of success, would pay its expenses, even if a capture were effected. In India and Siam, where elephant catching is an established business, a large proportion of the animals taken die in captivity. The proportion would be larger locally unless expert trainers, and tame elephant used to such work, were specially imported. In the above-mentioned countries, too, the herds are usually very much larger

than they are in the Federated Malay States, so that when allowance has been made for loss by death, there is still likely to be a profit on the sale of those that survive. It is not suggested that such undertakings cannot be carried out in the Federated Malay States, but that they can only be done at considerable expense and with very uncertain results.

With the object of showing that protective measures, other than shooting, can be successfully employed the Government undertook to keep elephants off the plantations that had suffered most in Perak for a period of six months. The estates concerned were situated on the road from Sungei Siput to Lintang, and between Sungei Siput and Plang. The system adopted was that of patrols. The first step taken was to collect all available information as to the number and size of the herds which frequented the district, and as far as possible to ascertain the seasons at which they visited certain feeding grounds in the vicinity of the plantations, and their usual lines of travel. In the first instance a small herd was located in the Plus Forest Reserve, the western boundary of which is also the eastern boundary of a number of rubber estates. It was obvious that so long as the herd remained in the Forest Reserve it might visit the plantations at any time. Tracks were opened through the forest in various directions to enable the patrols to get about the country, and to keep in touch with the movement of the elephants. The patrols were unarmed, but were supplied with Chinese crackers and bombs, and with these they succeeded in driving the herd out of the Forest Reserve and northwards across the Plus river. Owing to the fact that the elephants were in the habit of crossing the Plus at many points, and could, if they wished to do so, have crossed it almost anywhere, it was impossible to keep them on the north side of that river, but the constant patrolling of a path which was opened along the river bank made it possible to ascertain immediately the herd again entered the Reserve. When this occurred special attention was given to the boundary between the plantations and the Forest Reserve. Huts were built for the patrols at certain points along the boundary, and watch was kept at night. It will usually be found that there are certain points at which elephants are in the habit of leaving the forest and entering cultivated land. In the case in point, Sungei Reyla Estate was known to be a point of danger, owing to the fact that there is in the neighbourhood an area formerly under bendang cultivation, but now abandoned, which is a favourite feeding ground. Elephants visited the old bendangs on several occasions during the six months that the patrols were employed, but only on one occasion did they actually get on to the estate. This entry was made at two o'clock in the morning. The night watchers discovered the herd almost immediately and it was driven off without having done any material damage. It is not claimed that the patrols gave complete protection to the plantations lying to the south of the Plus Forest Reserve, as these estates are open to visits on their eastern and

southern boundaries, but they benefited to a great extent because the forest to the north is more frequented by elephants than that to the east and south. The total cost of the patrols for six months was slightly over $1,000, which included the erection of huts and the opening of paths. This expenditure gave good protection on a front of 10 miles and also kept the herds under observation over an area of some 50 square miles. If the protection had been extended to a larger area, the expenditure would have been proportionately cheaper. In other districts in which elephants have caused damage, the local conditions will not be the same, but if the estates affected will combine it should be possible to organize anywhere an effective scheme and system of patrols on the lines indicated above at a cost which would be insignificant compared with the interests involved. Sound organization in the first place, and constant efficiency thereafter in the detailed work, are essential to success. If at any time there is slackness in the management the whole object of the undertaking is liable to be defeated at any time. It would be advisable that the whole scheme should be under the control of a European, who has a good general knowledge of the country and is himself not averse to jungle work. It is very unsafe to rely entirely on native reports. By judiciously opening up forest tracks, and by studying the habits of the herds, it should be possible for a few well organized patrols to keep in constant touch with a herd, or herds, over a large area and to give due warning to estates which are in danger of being visited by them. So long as elephants are known to be in the neighbourhood, each estate must protect itself, and this can be done without difficulty or serious expense, and done effectively if the manager will take the necessary trouble. It is of little use to expect night watchers to be continually on the alert if they are never visited at night by someone in authority.

After the age of four or five years rubber trees are fairly safe from direct injury by elephants. The expense incurred during the first four or five years, by the system of protection outlined above will, if the scheme is well planned and energetically carried out, be found to be a cheap form of insurance.

SUMMARY OF LOCUST WORK FOR THE 3rd QUARTER, 1916.

By F. W. South.

PRACTICALLY the whole of the quarter was occupied with the work of destroying the very large generation of "hoppers" which hatched out in the Negri Sembilan, Malacca and Johore, and the work was not finished when the quarter closed. Very good work was done in the Negri Sembilan and Malacca and useful results were obtained in Johore, though local difficulties retarded the work in some centres, and in consequence more swarms escaped there than in the other two States.

As was stated in the report for the previous quarter these very numerous swarms of hoppers were not unexpected and additional apparatus had been provided so that there sould be no hindrance to the work from its lack. The uncertain factor was labour. In some districts this presented very considerable difficulties which were only overcome by importing labour from outside, or in some instances through the services of estate managers who loaned labour. On the whole, however, labour was not so difficult to obtain as it had been in the previous quarter, especially where damage was threatened to padi nurseries or to newly planted padi. The holiday of Hari Raya Puasa came just as the number of locusts was reaching a maximum, early in August, and caused a serious interference for about four days, but the interruption had no ill effects except in Johore.

The Chief Agricultural Inspector inspected the work in Malacca and Johore between 20th and 30th July, and in Malacca, the Negri Sembilan and Pahang between 16th and 27th August.

The arrival of flying swarms of locusts at Triang, in Pahang, where eggs were laid, formed a new feature of the work, as did also the presence of a swarm in the Ulu Rompin. So far as could be ascertained no eggs were laid in the latter locality; part of swarms returned to the neighbourhood of Batu Anam, Johore, from whence it came, and the other part went down the Rompin river and then disappeared.

Staff Changes.

The work in Negri Sembilan and Pahang was carried on as before by the Assistant Agricultural Inspector, Negri Sembilan, until

his departure for the Malay States Volunteer Rifles Camp in Singapore on 15th, September when his place was taken temporarily by the Assistant Agricultural Inspector, Selangor.

In Malacca, Mr. Lyford continued in charge of the work, but the question of subordinate supervision presented serious difficulties during July and the beginning of August. In August, however, an alteration in the arrangements for subordinate supervision was effected which gave satisfactory results and the work subsequently proceeded smoothly.

Selangor.

At the beginning of July there were four swarms present in Selangor, apparently the same as have been present during the most of the year. One was generally present between Kuchai and Puchong, one was in the north, moving around between Klang Gates, the Pahang Road and the Rawang Road, the third between Ulu Langat and Sungei Besi, and the fourth around Broga and Lengging. At the beginning of August, what was probably a fifth swarm was found near Sepang Road Station. This may have come in from the Negri Sembilan; it remained between Bangi and the Sepang Road during the rest of the quarter. No eggs or hoppers were reported.

Negri Sembilan.

The Coast and Seremban Districts remained free from locusts throughout the quarter, with the exception that one flying swarm moving northward was seen at Sungei Gadut and on the Linggi Road in August. This subsequently disappeared and may possibly have gone to Sepang Road.

In the remaining three Districts—Tampin, Kuala Pilah, and Jelebu—there was destruction work which extended from the middle of July to the end of the quarter. Early in July hoppers were reported by the District Officer, Tampin, at Ulu Gemas, on the Negri Sembilan-Malacca-Johore boundary, behind Mount Ophir. The Assistant Agricultural Inspector, Negri Sembilan, with a gang of coolies encamped for a week in this country from 19th to 26th July and destroyed 21 swarms of hoppers, but owing to the approach of the Hari Raya, sickness among the coolies and the pressure of work in other more important centres, he was unable to continue there. He found very numerous swarms of hoppers together with some fliers in the country on the Johore side of the boundary, and it is possible that this inaccessible and unpopulated area has been serving as a source of re-infection for parts of Malacca and Johore during the last 12 months. It is impossible to examine this country without organising a special expedition, but it is hoped that towards the end of the year when destruction work should be finished or much reduced it will be possible to inspect it carefully.

During July, the flying swarms in the Tampin District moved northwards and this movement continued during August. At the end of July, hoppers had appeared and work had commenced at Ayer Kuning, See Kee and Kopis, while several flying swarms about to lay were present throughout the country between Tampin and Kuala Pilah. During August, the centres of work were Yeu, See Kee, Kopis, Kuala Pilah and Sri Menanti—that is, along the Tampin-Kuala Pilah, the Jelai and the Kuala Pilah-Sri Menanti Roads, while there were flying swarms at Bahau and at Kuala Klawang, the latter having moved up from Pertang. In September, the work continued in these centres for a part or the whole of the month, and, in addition, hoppers were destroyed in more outlying places, such as Kuala Klawang, Bahau, Tampin, Batang Malaka and Keru. At the close of the quarter most of the hoppers had been destroyed, except certain swarms at Inas, near Johol, Batang Malaka and Kuala Klawang. Two flying swarms were present on the Malacca-Negri Sembilan boundary.

The total number of swarms destroyed during the quarter was 1,074, and at the close of the quarter it was expected that very few swarms would escape. In the middle of August, it appeared that however vigorously the work was carried on the generation of hoppers could not be completely destroyed, especially as temporarily no additional spraying pumps were obtainable. However, it was found that the hoppers in certain centres were less numerous than was expected, and with fairly satisfactory supplies of labour better results were finally obtained than it was thought at one time could reasonably be expected. In only two places did labour present difficulties—namely, at See Kee and Kuala Pilah. A gang of about 20 Tamils was formed in July and used at See Kee. This was with difficulty kept up to strength for a time but has now become reduced to 12 coolies. From the beginning of August to the end of September about 140 spraying pumps were in continuous use in the Negri Sembilan and Pahang, and as special attention was paid to minor repairs only a few were out of use each day. Credit for the satisfactory results obtained, both in the Negri Sembilan and in Pahang, is due to the two officers who were in charge of the work during the quarter.

Pahang.

As a result of the northerly movement of the flying swarms, locusts again entered the Temerloh District of Pahang which had been free of them for about two years. A swarm which was at Rompin in July moved up to Bahau and so to Ayer Kring on the Pahang Railway line, where it was joined by part of a flying swarm from Sri Menanti early in August. The combined very large swarm continued to move north along the railway line until it arrived

at Triang where it commenced to lay eggs on 24th August. The Assistant Agricultural Inspector, Negri Sembilan, and the Chief Agricultural Inspector were there at the time and made all arrangements for commencing the work of destroying the hoppers when they hatched out. Full information was sent to the District Officer, Temerloh. The eggs hatched out at the end of the first week in September and destruction work commenced on the 11th. Meanwhile the remains of the flying swarms moved up to Mengkarak and laid eggs there also, as well as between the two places. It then died out. Between 11th September and the end of the month 67 swarms were poisoned at Triang and the work was continued there and at Mengkarak after the end of the quarter. Labour was fairly easy to obtain and the work progressed satisfactorily.

Early in August a report was received from the District Officer, Pekan, that a swarm of locusts was in Ulu Rompin. A mandor and some coolies were sent from Tampin viâ Rompin Station to Ulu Keratong to make enquiries. It appeared that the swarm came from Johore up the Palong river into Pahang. After it reached the Ulu Rompin the Malays caught a considerable portion of it and it then divided, part flying down the Rompin and part returning to the Palong river and so back towards Johore. That part on the Rompin river soon disappeared into the jungle and was not seen again. It did a little damage to padi, maize, sugar-cane and bananas along the river.

All the locust work in Pahang was in charge of the Assistant Agricultural Inspector, Negri Sembilan, and was carried on by the Negri Sembilan staff.

Malacca.

The new season of destruction work opened practically with the commencement of the quarter and had not concluded at the end of September, as a certain number of swarms came in from the Johore boundary during August, and laid eggs in certain localities which had just been freed of hoppers.

Work commenced on 2nd, July with the flooding of breeding grounds in the neighbourhood of Jasin. In all, five were destroyed by 5th July. On 7th July, trapping commenced around Jasin in several centres, and on the 14th on the Kesang Road, at Bukit Senggeh and at Nyalas. Numerous breeding grounds were found in the triangle between the Jasin-Merlimau and the Jasin-Kandang Roads, along the Coast Road from Kandang as far as the Police Depôt, Malacca, at Gading on the Durian Tunggal-Kesang Road, on both side of the Durian Tunggal-Alor Gajah Road and at Bukit Rambai. There was great difficulty in obtaining labour at Gading and Kesang and also on the estates between Jasin and Bemban, when the work

was started there towards the end of July. The difficulty on the estates was solved through the courtesy of a manager who permitted us to hire estate coolies in the afternoons.

Practically nothing could be done in August, until after the conclusion of the Hari Raya Puasa, which involved three or four days holiday. After this, however, work began again and proceeded smoothly in the few unfinished centres around Jasin and also in the Central District, where gangs, under certain of the Penghulus and Sidangs, did very good and regular work. The difficulty of obtaining labour at Gading and Kesang was met by sending down Tamil coolies from Selangor, of whom a gang of 18 was established. Afternoon work was necessary at Serkam.

As the month proceeded numerous additional breeding grounds and swarms of young hoppers were found along the railway line near Tampin, on estates between the Alor Gajah-Tampin and Alor Gajah-Simpang Ampat Roads, and at Ayer Pa Abas. Work was commenced in these places also.

At the end of the month, most of the hoppers from the July breeding grounds had been destroyed and the only escapes were a small percentage of fliers at Ayer Molek, where labour had been almost unobtainable. The work in the Central District, done mainly by the Penghulus and Sidangs, was most successful. Three new flying swarms about to lay were present, one near Sungei Udang, one between Lendu and Lubok China and another at Batang Malaka.

Work proceeded all through September in the Alor Gajah District, and certain changes in the subordinate supervision made in the previous month caused a considerable improvement in the work done. There was also work in parts of the Central District and near the Coast. During the second week of the month, swarms hatched out at Tebong, around Batu Berkarat, at Batang Malaka, and for the second time at Jus and Bukit Senggeh; while Malaka Pinda, Sungei Udang, Lendu and Bukit Rambai were also re-infected. Some of the hoppers, if not all, were the offspring of the swarms reported as present at the end of August.

At the end of September much of the work was finished with the exception of that in a few localities in the north. Most of the swarms of hoppers had been destroyed or would soon be destroyed, but it was feared there might be a few escapes at Sungei Baru and near Gadek. There were six flying swarms in the territory at the end of the month at the following places: Chabau, Asahan, Gapis, Chohong, Lanchang and Bukit Rambai. Most of these had come in from outside.

Heavy rain during August hindered the work in the hilly parts, but in low-lying country it assisted, as the drains were all full of water and it was possible to spray them with kerosene and then drive the hoppers into them. This method of destroying locusts is far quicker than that of using a tin trap, and it was extensively employed during the whole quarter, making possible the results obtained.

In all, 2,425 swarms were destroyed during the quarter and only at Ayer Molek did any flying locusts escape. This is a very creditable result and was secured, in spite of local difficulties in obtaining labour and several unreliable subordinates who had to be replaced. In all, 1,180 gangs, involving a total of 15,238 coolies, were employed. The average number of gangs working each day was 13, and the maximum number on any one day was 21.

In July, a little damage was done to padi nurseries by flying insects, but on the whole it was insignificant and no really serious damage was caused to padi or other crops anywhere during the quarter. Mr. Lyford states that the Malays are planting their padi with much more confidence now and, if so, this is attributable to the work done in destroying locusts during the last two quarters.

Johore.

In this State also there was a large generation of hoppers and work was continuous in one centre or another throughout the quarter. In all, 573 swarms were destroyed, and of these, 63 were trapped, the remainder being poisoned. At the close of the quarter work was still in progress in the Batu Anam District and there was flying swarms in all the Districts, so that more work was anticipated at the end of October, or the beginning of November, in at any rate certain of them. It is unfortunate that the locusts managed to re-infect the country immediately around Bandar Maharani which had been free for some time, and also the Batu Anam District, as was mentioned in the report for the last quarter.

Tangkak.—Hoppers first appeared in this district on 11th July, at Bekok, and poisoning was commenced there on 13th July. Subsequently hoppers appeared in numerous other centres around Tangkak and work was carried on continuously, with the exception of three days holiday for the Hari Raya Puasa, until 15th September, when there were no hoppers left. There were a few escapes at Belamang Ayer Panas, Sagil and Bekok. On 15th August, one of the mandors was transferred to Muar, to start work there as an experienced man was required. A man from the cooly gang was appointed mandor in his place.

Sungei Mati.—Hoppers hatched out in this district on 15th July, at Serom and also between the 10th and 14th miles on the Tangkak Road. On the 17th, work started at the 10th mile, but on the 23rd the gangs were transferred to Merbau Bedarah, one mile in towards Malacca from the 4th mile, as the Malays complained that their padi and sugar-cane were being eaten. Good work was done and much of the padi was saved. It was subsequently found that all the country between the 2nd and 6th miles, running back towards the Kesang River, contained numerous swarms of hoppers, and the gang worked along from the 2nd to the 6th mile at from one to two miles from the road throughout August and until 10th September, when the work stopped. The discovery of these swarms was not made in time to allow a second gang to be started at Serom, and in consequence a large flying swarm escaped there in August. This was joined in September by a small swarm which came from inland and the combined swarm was flying around the Serom neighbourhood at the end of the month. Along the boundary between Kesang and Sungei Palong, fliers arrived in September and were believed to come from Malacca. Hoppers were not expected to re-appear in this district until the month of November or the end of October at the earliest.

Panchor, Muar River.—The work at the back of Nordanal Estate, commenced on 28th June, continued until 28th July, when there were no hoppers left in this locality and work stopped for the Hari Raya. At the end of the month hoppers were reported at Jorak down the river towards Muar, and were believed to be the offspring of a swarm from Bukit Pasir. On 7th August, work was resumed around Panchor and continued until 15th September. No hoppers escaped here, but those at Jorak could not be dealt with and a small swarm of fliers escaped in September, and joined the Serom swarm. At the end of August there was a large swarm of young fliers at the back of Nordanal Estate which may have come from the Ulu or may have been overlooked during the July work. Another swarm of fliers came to Pengkalen Bukit in September, and these two were the only important swarms in the district.

Batu Anam.—In July, breeding grounds were found in this district along the railway line between Buloh Kasap and Segamat, and at the end of the month as far south as Tenang and Genuang. It was also known that they existed along the Jementah Road although they were not located. In August, hoppers hatched out on the 18th, and some of these near Buloh Kasap were burnt by the Malays who also flooded breeding grounds and thus destroyed the eggs. Unfortunately, the Assistant Agricultural Inspector was prevented from going to Batu Anam by the rain which rendered the roads impassible for nearly a week, and in consequence there was a delay in starting the work as the mandor had not received the

money to buy sugar, and the Chinese would not supply it on credit. The work on the Jementah road was further delayed by labour difficulties but commenced at the 4th mile on 10th September. Near the end of the month 12 additional sprayers were brought from Muar to accelerate the work; on suitable days the coolies worked overtime in the afternoons and evenings, but in spite of this a number of escapes were expected on the Jementah road, while a few hoppers at Buloh Kasap and Spening could not be dealt with, owing to the pressure of the Jementah road work and these must also escape. In addition to these two new flying swarms came into the district during the month, so that, in the coming quarter, there will probably be large numbers of locusts present.

Muar District.—On 8th July, a very large swarm of flying locusts crossed the river and arrived at Bandar Maharani where it split up and laid eggs in various places near the town. These eggs hatched at the end of the month. A part of the swarm went further south along the railway line to Sarang Buaya, but apparently had laid all its eggs first as no hoppers were subsequently reported. Destruction work commenced on 19th August, after some delay owing to the difficulty of getting coolies. The driving method was used until the end of August, as poisoning near the town was dangerous; on 1st September, poisoning was commenced with 12 new sprayers recently received, and was continued until the 6th; the driving work during this period was discontinued as it was slow and no longer necessary. Unfortunately there were numerous escapes and at the end of September fliers were reported at Bukit Dinding (6th mile along the Jalan Bakri), near Bukit Treh, 12 miles from Bandar Maharani on the railway line and on the sea coast six miles from the town.

Conclusion.

As the work for the season has not yet been concluded there are no full reports yet available of the number of flying swarms left in the different States, and in consequence it is not possible to give any definite summary of the situation. The large amount of destruction work in the Negri Sembilan and Malacca should result in a considerable reduction in the number of locusts there, though more work will almost certainly have to be done this year in both places. It is clear that there will be several swarms in Johore during the coming quarter and work is certain to be re-commenced there fairly extensively before the end of the year. It may be possible to utilize a part of the staff and of the apparatus from the Negri Sembilan to assist in Johore, especially near the boundary, as the country along the boundaries from Tampin to Batu Anam and from Batu Anam through Tangkak to Jasin would appear to be now the chief centre for the locusts.

LOCUST WORK RESULTS, 3RD OCTOBER, 1916.

State.	District.	Locality.	Date.	Swarms Driven.	Tins.	Swarms Poisoned.	Total Swarms.	State Totals.
Negri Sembilan	Tampin, Kuala Pilah and Jelebu	Ulu Gemas	July	...	...	21	21	
		See Kee ...				28	28	
		Kopis ...				8	8	
		Ayer Kuning				6	6	63
		Yeu ...	August	...	...	60	60	
		See Kee ...				177	177	
		Kopis ...				163	163	
		Kuala Pilah				48	48	
		Sri Menanti				7	7	455
		Tampin	July 19-Sept. 30 ...	...	...	71	71	
		Repah and Yeu	September ...	...	...	127	127	
		Inas and Sumusal				57	57	
		See Kee ...				99	99	
		Kopis ...				34	34	
		Kuala Pilah				6	6	
		Sri Menanti ...				22	22	
		Bahau ...				61	61	
		Batang Malaka and Keru ...				42	42	(bilan 1074
		Jelebu ...				37	37	556 Total Negri Sem-
Pahang	Temerloh ...	Triang		...	...	67	...	67 Total Pahang 67
Malacca	For details ...	*See* text ...	July 2- 5	Five breeding grounds flooded.				
			July 7-31	258	...	...	258	
			Aug. 3-31	869	...	...	869	
			Sept. 1-30	1,298	...	...	1,298	Total Malacca 2,425
Johore	Tangkak ...	Pancher ...	July 13-Sept. 15 ...	...	...	144	144	
	Sungei Mati ...		July 17-Sept. 10 ...	...	...	92	92	
	Muar River ...		June 28-Sept. 15 ...	...	...	160	160	
	Muar		Aug. 19-Sept. 16 ...	63	120	33	96	
	Batu Anam ...		August (end of) Sept. 10-31.	A swarm of hoppers burnt and some breeding grounds flooded 81			81	
			Totals ...	63	120	510	573	Total Johore ... 573
								Final Total ... 4,1~~47~~

39. (LN)

INDIAN IMMIGRATION COMMITTEE.

A MEETING of the Indian Immigration Committee was held at Penang on the 10th November.

There were present: the Controller of Labour (Mr. J. R. O. Aldworth) *Chairman*, the Principal Medical Officer, F.M.S. (Dr. C. L. Sansom), the Hon'ble Mr. J. Mitchell, Mr. W. Duncan, and Mr. E. E. Smith, with the Secretary, Mr. E. W. F. Gilman, Deputy Controller of Labour, Penang.

The following statements of arrivals and departures of Southern Indians for the period 1st January to 31st October, 1916, and for the corresponding period in the three preceding years are laid before the Committee:

ARRIVALS.

	Assisted.		Others.	
	Adults.	Minors.	Adults.	Minors.
1913	77,587	6,933	22,697	1,425
1914	34,247	2,658	13,562	750
1915	46,456	3,265	16,910	995
1916	57,933	6,318	16,477	1,333

DEPARTURES.

	Adults.	Minors.
1913	56,857	2,910
1914	53,369	2,382
1915	43,383	1,986
1916	43,201	1,673

A return was presented showing that the number of kangani licences registered in Penang from the 1st January to 31st October, 1916, was 7,417 compared with 4,697 registered in the corresponding period of 1915. The Controller of Labour laid on the table charts showing the number of recruiting licences registered and the number of immigrants introduced during the last five years; the number of labourers imported is shown to depend to a striking degree upon the number of kangani recruiting licences registered—*e.g.*, in 1913 both curves reached their maximum when 10,806 licences were registered and 91,236 assisted immigrants came over. In 1915 only 5,436 licences were issued and the number of immigrants amounted to 54,881 only. The Chairman expresses the opinion that the alleged shortage of labour in certain districts would be to a great extent remedied if the planters of to-day realised the necessity of constant recruiting as did those of several years ago, and suggests that the members of the Committee should lose no opportunity of pointing out how largely the number of recruiting licences had been reduced.

Of the men sent over with licences about one in seven fails to produce any recruits while the average number of immigrants to each licence is less than ten. At the desire of the Committee the Chairman promised to circularize all subscribers to the fund, pointing out how essential it is that every employer of Indian labour should do his fair share in maintaining the labour supply of the country, and how impossible it is to keep up the number of immigrants if the number of recruiting licences is not maintained.

During the first ten months of 1916, 95 licences were refused at Penang and 287 were cancelled in consequence of reports received from the Emigration Agents in India.

A statement of quarantine expenses was submitted and considered showing that the average cost per head at each station for the third quarter of 1916 was as follows: Penang, $2.25; Port Swettenham, $2.03; general average, $2.12.

Audited accounts for the half-year ending the 30th September were laid on the table and passed after consideration. Fourteen items of assessment amounting to $300.12 were written off as irrecoverable.

The Chairman reports that a number of cases have been brought to his notice in which recruiting commissions are being paid in excess of the sum declared on the recruiting licence to be payable. The Committee view with grave disapprobation this practice, and after discussion the Chairman is requested:

(i) To write to the managers of the estates concerned informing them that no more recruiting licences will be registered on account of their estates until he is satisfied that instructions have been issued to the financial agents to discontinue the payment of recruiting commissions, or any sums by way of reward for recruiting, in excess of the commissions stated on the recruiting licences to be payable;

(ii) To write to the financial agents referring to this resolution and inviting them to co-operate with the Committee in their effort to stop the payment of rewards in addition to the recognized commissions; and

(iii) To send a circular to all estates that employ Indian labour prohibiting the payment of commissions or other rewards in excess of those stated on the recruiting licence to be payable.

Correspondence is read between the Deputy Controller of Labour, Penang, the manager of an estate in Perak, and Messrs. Kennedy and Co., the Penang agents of the estate, on the subject of the costs incurred by employers in connection with recruiting. The Chairman points out that there is a very prevalent idea that such cost amounts to $10 or $12 per head. In the case quoted the

manager was under the impression that his costs had been $12.37 per head; whereas the correspondence showed that they were actually, after deducting the recruiting allowance of $5 per head, only $2.55. Further, in this instance, $2 represents a contribution made to the funds of a local association which maintains its own financial agent in India, and in the case of those who are not members of this association the recruiting costs are correspondingly lower.

The appointment of visitors to the Quarantine Station, Port Swettenham, is discussed. The Chairman gives the names of certain gentlemen suggested by the British Resident of Selangor. The Committee consider those most suitable and recommend their appointment. Mr. Mitchell mentions that he has personally visited the Port Swettenham Quarantine Station on two occasions since he joined the Committee and suggests that regular visits be arranged for Pulau Jerejak. Messrs Duncan and Mitchell undertake to visit the Pulau Jerejak Quarantine Station at least twice in the course of the next half-year.

The question, of which notice had been given by the Planters' Association of Malaya, of placing the Quarantine Camp and Depôt at Port Swettenham under one administration is considered. Mr. Duncan states that the Planters' Association of Malaya only wished to secure more cohesion between the two institutions. Dr. Sansom undertakes to see that in future notice will be given by the Quarantine Station authorities to the Depôt before 9 a.m. on the morning before the day of discharge of any batch of immigrants from the Quarantine Station.

The Chairman reports that a fresh stock of notices regarding the issue of free tickets has been procured as agreed to by the Committee in a paper which had been circulated. The Committee approve the new form for distribution to returning emigrants referred to in that paper. The Chairman gives figures showing the increase in the number of voluntary immigrants—*viz.*, 3,242 adults and 240 minors this year as compared with 2,309 adults and 131 minors during 1915.

With regard to the Home for Decrepit Indians the Chairman reports that for the year ending 31st October, 1916, a sum of $6,930.84 had been expended on the Home out of an estimated expenditure of $10,000, the chief item of saving being on "diets," owing to the small number of decrepits entering the Home. During the same period 204 decrepits were admitted, 89 were repatriated, 81 were transferred to the General and District Hospitals, Kuala Lumpur, 21 were discharged as fit for work, 14 absconded, two died and one was transferred to the Lunatic Asylum. The number remaining on the 31st October, 1916, was 51. An expenditure of $9,000 is approved for the current year.

It is decided, subject to the consent of His Excellency the High Commissioner, to prescribe for the first and second quarters of 1917 a quarterly rate of $1.50 to be paid by every employer in respect of every Indian labourer employed or working on the place of employment during the respective quarters. Similar rates are prescribed for the Straits Settlements and for Johore, Kelantan, Kedah and Perlis. The number of working days prescribed in a quarter for the purpose of calculating this assesment was again fixed at 78 for the next two quarters.

It was decided to pay a recruiting allowance of $5 on account of all labourers recruited by licensed kanganies introduced during the first and second quarters of 1917.

Mr. Smith states that he has been requested to bring to the notice of the Committee the wishes of the Malacca Planters' Association regarding the establishment of a quarantine station and depôt at Malacca. After discussion of the proposal the Committee decide that they cannot see their way to support the proposal. The Chairman pointed out incidentally that the total number of labourers recruited in India for employment in the Settlement of Malacca during 1915 amounted to only 2,395.

ELEMENTARY TROPICAL BOTANY.

THE need for a students' text-book of tropical botany is a pressing one, but perhaps of still more urgency is the demand for correctly conceived and well written books of elementary nature dealing with the life histories of members of the flora and fauna of this country.

The student as such can progress in and develop his knowledge in certain ways, in botany particularly, by collecting for himself and by digging in the pages of the fairly complete flora references which we already possess, but the interested "layman" and the Asiatic of educational attainment (which is high in particular directions) is practically deprived of getting into sympathetic touch with his environment, since, having had no preliminary training, he is unable to take advantage of the advanced material in the floras. Suitable books of elementary nature, at once informative and indicating the way to proceed in study, should go some distance in altering the present condition of affairs, at all events with those who have the knowledge of English of such a standard as is attained by them on their egress from the Malay College. How far they will go is a matter of speculation, for the way to biological knowledge is long and difficult, being essentially obtained, not by the lecture or the text-book, but for the most part by the baffling and often painful disciplinary method of self-teaching. Time will remedy the present defects in our educational system, and with the mechanism of trained teachers available, biology will make its incursion into the school curricula developing from nature study, elementary chemistry and physics, to systematic botany, experimental biology, and finally to the science of agriculture, but it will be some years ere we can have trained Malays capable of instigating and executing scientific work themselves. This, however, cannot be urged as a complete excuse for lack of effort at self-education which is to be seen in many Asiatics working at agriculture, and even the scientific purist will not claim that a large amount may not be achieved. Mere mechanical execution can be avoided by effort sympathetically stimulated, and an example of how this may be done for the beginner in botany is to be found in *Glimpses into the Life of Indian Plants* (Pfleiderer), the new edition of which is just to hand.

This avowedly elementary book deals with many groups of plants of which we have representatives, and for the sake of the first part of the book is strongly to be recommended to those who have had no systematic training.

The "types" are described in plain language with a particularly pleasing and welcome avoidance of technical terms. In places,

however, the author discloses how difficult it is to put the facts of science into the language of narration, thus speaking of the Lotus Water-Lily—

P. 2. "It sends down stout, long roots *into the soft mud* so that it may not be carried away by any movements of the *water in which it grows*;

"As soon as the leaves reach the surface, the stalk ceases to grow, and the leaves unroll their broad blades for the *sun and air to play on*;

P. 3. "The *openings* in land plants are more numerous on the lower side of the leaves, ..."

He is perhaps also a little unhappy in his brief descriptions of the natural orders. The illustrations, which are very numerous, are for most part accurate and well executed, some of the colour plates being specially good though perhaps a little tersely described. There are also a few mis-spellings.

As a whole the one major criticism which may be made is that the author has resorted to narrating the points of elementary physiology in the second part of the book, where the mere indication of a series of experiments would have been much more valuable. The index is full and complete and is supplemented by an index of vernacular names. It is hoped that the time may not be far distant when books of similar type may be forthcoming for Malaya.

The book is published by the Basel Mission Book and Tract Depository, Mangalore, at the moderate price of 1 rupee 12 annas.

G. E. COOMBS.

MINUTES OF MEETING OF THE PLANTERS' ASSOCIATION OF MALAYA,

held at the Ipoh Club, Ipoh, on 25th October, 1916, at 11.45 a.m.

PRESENT:

Mr. Wm. Duncan (*in the Chair.*)

DELEGATES—

From Batang Padang D.P.A.	Messrs. T. H. B. Phillips and F. H. M. Staples
„ Batu Tiga D.P.A.	Mr. G. H. Bennett
„ Central Perak P.A.	Messrs. A. B. Milne, J. S. Ferguson and H. de Z. Lancaster
„ Johore P.A.	Mr. A. L. Buyers
„ Kapar D.P.A	„ J. G. Cruickshank
„ Kuala Selangor D.P.A.	„ L. A. Irving
„ Lower Perak P.A.	Messrs. R. H. Phillips and W. Dell
„ Malay Peninsula Agricultural Association	„ A. R. Morgan and J. W. Kennedy
„ Negri Sembilan P.A.	„ J. Davidson McCulloch, J. Bruce, V. A. Tayler and G. W. Hingston
„ Taiping P.A.	„ E. L. Huson and F. G. Souter
„ Ulu Selangor D.P.A.	Mr. W. de L. Brooke

VISITORS—Messrs. G. Nevill Stevens, G. Wiseman, Wm. Paterson, H. H. Park, C. S. MacDonald, A. H. Orr, P. G. Lawford, S. K. Wickwar, C. S. Buyers, E. D. Lane, H. R. Baxter, John Whyte, J. A. Eaton Kent, F. D. Dewson, G. E. Henning, B. O. French, T. H. Murray, H. M. Simpson and C. M. Naested.

1. The Chairman having explained and apologized for the unavoidable delay in starting, the minutes of the meeting held on August 30th are taken as read and confirmed.

2.—LABOUR CODE, SECTION 66 (ii).

The SECRETARY reads the following correspondence:

"KUALA LUMPUR,
"*14th September, 1916*

"SIR,

"I have the honour to inform you that at the last meeting of this Association held on the 30th ultimo, the following resolution was unanimously passed:

"'That in the opinion of this Association the onus of prosecuting for offences under 66 (i) of the Labour Code should rest upon the Controller of Labour.'

"In amplification of the above, I am instructed to say that section 66 (ii) is at present interpreted as meaning that complaint must be made by the employer to a Court.

"But I would point out that when a *labourer* has a grievance, he makes his complaint to the Labour Department who see it remedied if investigation shows the grievance to be a substantial one. The *employer*, however, when he has a grievance, is denied similar assistance, and without such assistance it becomes improbable in the extreme that he will obtain any legal remedy.

"He may inspect a register and satisfy himself that his coolies have been engaged without being registered. But he cannot produce this register in Court, and the distance between his own estate and the court in whose jurisdiction the offence is committed—an offence under this section almost invariably involving that such distance is considerable—will in most cases render it impossible for him to pursue his remedy.

"The Labour Department on the other hand has officers all over the country: it collects a special fee for undertaking this registration, and ought not, we contend, to allow it to become a dead letter.

"It should be understood that we are not contending that the Controller should prosecute in every case when a complaint is laid: but merely that he should prosecute when a complainant can show to him, after inspection of the register, that a *prima facie* case of non-compliance with the law exists. Unless the law imposes on the Controller the same power to protect the employer as he possesses for the protection of the labourer, in cases which the law recognizes to be breaches of his rights, we submit that it cannot be expected that the law should command respect or obedience.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"THE HON'BLE
"THE CHIEF SECRETARY,
"FEDERATED MALAY STATES."

"KUALA LUMPUR,
"*12th October, 1916.*

"No. 4450/16.

"SIR,

"With reference to your letter dated 14th September, I am directed by the Chief Secretary to inform you that the Government has given full consideration to the resolution passed by the Planters' Association of Malaya on the 30th August to the effect that the onus of prosecuting for offences under section 66 (i) of the Labour Code should rest upon the Controller of Labour.

"2. The Government does not share the view expressed in paragraph 3 of your letter that without such assistance it becomes improbable in the extreme that the employer will obtain any legal

remedy and does not consider it necessary or expedient that the Controller should be required to prosecute for offences under the section in question.

"3. The Chief Secretary is advised that, although the Controller has a right to appear and be heard in Court, this does not extend to the making of a complaint under section 66 (ii) and, even if the Controller did exercise his right to appear and be heard, it would still be necessary for the aggrieved employer to attend Court and make his complaint and then attend the hearing with his witnesses if any.

"4. With reference to the statement in paragraph 4 of your letter that the employer cannot produce the register in Court it may be observed that the production of the register can always be secured by the issue of a subpœna if there is any difficulty as to obtaining its production otherwise.

"I have, etc.,
"(Sd.) S. McArthur,
"*Under Secretary, F.M.S.*

"The Secretary,
"Planters' Association of Malaya."

Mr. Duncan suggests that in the circumstances, the matter had better be dropped for the time being; which is agreed to.

3.—ARREST OF ABSCONDERS.

The Secretary reads the following correspondence:

"Kuala Lumpur,
"*7th September, 1916.*

"Sir,

"I have the honour to inform you that two years ago my Association submitted to the Under Secretary the necessity of appointing all Magistrates as Magistrates in and for the whole of their State.

"In his reply (No. 7330 of 12th December, 1914), the Under Secretary informed us that such was already the case; but it has since transpired that under *Selangor Gazette* Notification 295 of 1907 the Assistant District Officer at Klang is a Magistrate appointed for the Klang District, and not for the State of Selangor.

"The matter came up for discussion at the last meeting of this Association, when I was instructed to draw your attention to the discrepancy and to submit that the Assistant District Officer, Klang, be forthwith appointed a Magistrate for the whole State.

"I have, etc.,
"(Sd.) H. C. E. Zacharias,
"*Secretary.*

"The Hon'ble
"The British Resident of Selangor."

"OFFICE OF THE SECRETARY TO RESIDENT, SELANGOR,
"KUALA LUMPUR,
"*2nd October, 1916.*

"No. 6 in 4420/16.

"SIR,

"With further reference to your letter of the 7th September concerning the appointment of Magistrates for the State, I have the honour to inform you that, with the exception of District Officers, it has hitherto not been the practice to appoint officers in Selangor outstations to be Magistrates except for their respective districts.

"2. The Resident has now had the matter under further consideration and has decided to appoint certain other officers to be Magistrates for the State.

"3. Particulars concerning the officers so appointed will be found in *Gazette* Notifications 3044 and 3045 of 1916.

"I have, etc.,
"(Sd.) O. F. STONOR,
"*Secretary to Resident, Selangor.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

The SECRETARY reports that on the 29th of September the Harbour Master, Selangor, and the Assistant District Officers of Klang and Ulu Selangor had been gazetted Magistrates in and for the State of Selangor.

Mr. IRVING remarks that they had now got to the position that they assumed they had been in all along and it was now for them to take another test case, as soon as a suitable opportunity offered itself.

4.—DEPÔT AND CAMP AT PORT SWETTENHAM.

The SECRETARY reads the following correspondence:

"KLANG,
"*20th October, 1916.*

"DEAR SIR,

"At a meeting of the Klang District Planters' Association, held on the 18th instant, I was instructed to forward to you the enclosed figures, supplied by the Assistant Controller of Labour, Klang, showing the number of absconders from the Camp and Depôt at Port Swettenham from 1st October, 1915, to 30th September, 1916, and to ask you to bring up this matter again at the Planters' Association of Malaya meeting of 25th October under the heading of Quarantine Camp at Port Swettenham. The previous correspondence

between the Klang District Planters' Association and the Secretary to the Resident was sent to you on 30th March last.

"Yours faithfully,

"(Sd.) C. A. Buxton,

"*Hon. Secretary, Klang D.P.A.*

"The Secretary,

"Planters' Association of Malaya."

	No. of coolies admitted into camp.	Absconded.
1915.		
October	3,439	10
November	1,723	2
December	1,838	6
1916.		
January	1,210	—
February	1,276	1
March	1,741	2
April	3,857	4
May	5,406	3
June	6,605	48
July	9,229	73
August	5,926	29
September	4,196	4
	46,446	182

	No. of coolies admitted into depôt.	Absconded.
1915.		
October	3,543	5
November	2,464	9
December	1,836	2
1916.		
January	1,250	—
February	1,250	2
March	1,462	1
April	3,068	3
May	4,901	—
June	6,143	10
July	6,229	1
August	7,414	3
September	5,545	8
	45,105	44

"KUALA LUMPUR,
"*7th September, 1916.*

"SIR,

"I have the honour to inform you that a report on the Quarantine Camp at Port Swettenham was presented by Mr. F. G. Harvey and Mr. G. H. Bennett to a recent meeting of this Association, when I was instructed to submit to you the recommendations arrived at by these gentlemen—*viz.*:

"(1) The regular stationing of a Medical Officer at the Quarantine Camp during the recruiting season;

"(2) An addition of 40 feet to the present length of the kitchen;

"(3) A light railway from entrance to centre of Camp;

"(4) That the latrines at the cooly depôt be made similar to those at the Quarantine Camp.

"I have the honour to enclose for your information a copy of the report in question.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"UNDER SECRETARY,
"FEDERATED MALAY STATES."

"KUALA LUMPUR,
"*18th September, 1916.*

"No. 2 in 4328/16.

"SIR,

"I am directed to acknowledge receipt of your letter of the 7th September, 1916, forwarding a report on the Quarantine Camp at Port Swettenham, presented to a recent meeting of the Planters' Association of Malaya by Messrs. F. G. Harvey and G. H. Bennett.

"I have, etc.,
"(Sd.) W. MACKRAY,
"*for Under Secretary, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

"KUALA LUMPUR,
"*7th September, 1916.*

"SIR,

"I have the honour to inform you that at a meeting of my Association held on 30th August, I was instructed to invite your Committee to consider the advisability of placing the Camp and Depôt at Port Swettenham under a single administration.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"CHAIRMAN,
"INDIAN IMMIGRATION COMMITTEE."

"KUALA LUMPUR,
"*8th September, 1916.*

"No. 2 in 415/16.

"SIR.

"I have the honour to acknowledge the receipt of your letter dated the 7th September current and to state that the subject thereof will be placed before the Immigration Committee at the meeting to be held early in November next.

"I have, etc.,
"(Sd.) J. R. O. ALDWORTH,
"*Chairman, Indian Immigration Committee.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

Mr. DUNCAN understands from the Secretary that there were one or two matters which he had been asked to bring before the Association. These related chiefly to labour disputes between individual planters, but he did not think it was within the scope of the Association to consider such matters. The Association could use its power on questions of principle but personal matters he must altogether rule out of order. (Hear, hear.)

5.—TODDY.

The SECRETARY lays on the table the following documents connected with the new Commission of Enquiry appointed on 3rd October, 1916:

"KUALA LUMPUR,
"*10th October, 1916.*

"SIR,

"As it is understood that a Commission has been appointed under your presidency to enquire into certain aspects of the control, etc., of toddy in the Federated Malay States and as this is a subject in which my Association has for long taken a deep interest, I am instructed by my Standing Committee to enquire whether you would be good enough to allow the Association to appear before the Commission by Counsel. If so, I should be glad to hear at an early date, where and when it is intended that the Commission should sit.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"HIS HONOUR
"MR. JUSTICE SPROULE,
"PENANG."

"KUALA LUMPUR,
"*14th October, 1916.*

"TODDY COMMISSION.

"SIR,

"I have the honour to acknowledge the receipt of your letter of the 10th October asking that the Association be permitted to appear before the Toddy Commission by Counsel, and in reply beg to say that the Commissioners would be grateful if you would appoint a solicitor for the purpose of collecting and collating evidence and laying it before the Commission and if necessary cross-examining such witnesses as he may think fit.

2. Would you be good enough to inform the Secretary at the Mines Department as to the name of the gentlemen you appoint to act, and the probable date by which he will have his evidence ready so that the date of hearing can be fixed as soon as possible.

"I have, etc.,

"(Sd.) P. J. SPROULE,
"*President.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

"KUALA LUMPUR,
"*19th October, 1916.*

"TODDY COMMISSION.

"SIR,

"I have the honour to forward herewith, in accordance with instructions from the Commissioners, copy of correspondence regarding the alleged poisoning of Indian labourers by the consumption of adulterated and unwholesome toddy.

"I have, etc.,

"(Sd.) D. RAWLINSON,
"*Secretary.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

"KUALA LUMPUR,
"*26th October, 1916.*

"SIR,

"I have the honour to acknowledge receipt of Mr. Justice Sproule's letter of the 14th instant and of your letter of the 19th instant with enclosures, for which I am obliged.

"My Association gladly avail themselves of the permission given to them by the President of the Commission of appointing a solicitor for the purpose of collecting and collating evidence and we have appointed Mr. P. Barnard Ford of Klang accordingly.

"Mr. Ford has not yet been able to let me know when he expects to have his evidence ready, but as soon as I can get information to that effect I will immediately let you know.

"I have, etc.,
"(Sd.) H. C. E. ZACHARIAS,
"*Secretary.*

"D. RAWLINSON, ESQ.,
"SECRETARY,
"TODDY COMMISSION, MINES DEPARTMENT,
"KUALA LUMPUR."

Mr. MCCULLOCH believes that the vernacular press in India was making use of sensational statements regarding the toddy evil in this country, thereby trying to prejudice emigration to Malaya.

Mr. DUNCAN does not consider that any useful discussion is possible, until the findings of the two Commissions are available. The whole question had better stand over until then.

6.—WAR RELIEF.

"The SECRETARY reads the following correspondence:

"HIGH COMMISSIONER'S OFFICE,
"SINGAPORE,
"*11th September, 1916.*

"H.C.O. 1563/16.

"SIR,

"I have the honour to inform you that an account of the proceedings of a meeting of the Planters' Association of Malaya held at Kuala Lumpur on the 30th August, 1916, which appeared in the edition of the *Malay Mail* of the 31st August, has been brought to the notice of the High Commissioner.

"2. In that account the following purports to be a statement made by the Secretary of the Association when referring to the Planters' War Relief Fund.

"'He added that the Colonial Government had reversed their decision not to contribute dollar for dollar as was being done by Federated Malay States and had now decided to do so in respect of sums subscribed in the Colony.'

"3. I am directed by the High Commissioner to state for your information and for the information of the Planters' Association of Malaya the following facts:

"(i) On the 12th August, 1915, the Legislative Council of the Colony passed the following resolution:

"'That this Council approves of the payment from time to time to the Prince of Wales' Relief Fund Committee,

Singapore, for the relief of those wounded or the relief of the dependents of those killed in the war or the mutiny, of sums equal to the amounts expended on the same objects by that Committee out of its own funds, provided that such sums shall not in the aggregate exceed the equivalent of £10,000.'

"(ii) On the 16th November, 1915, the Federal Council of the Federated Malay States passed a similar resolution which ran as follows:

"'That this Council approves of the payment from time to time to such a Committee as may be approved by the High Commissioner, for the relief of those wounded or disabled by sickness in the war or the relief of the dependents of those killed in the war, of sums equal to the amounts expended on the same objects by that Committee out of its own funds, provided that such sums shall not in the aggregate exceed the sum of fifty thousand dollars.'

"(iii) On the 27th July, 1916, it was brought to the notice of His Excellency as Governor of the Straits Settlements that some rubber estates in the Colony had subscribed to the Federated Malay States War Relief Fund No. II and that it was desired that the Colony should subscribe dollar for dollar towards sums expended by the Committee in London, for relief of those wounded or disabled or relief of the dependents of those killed in the war, who came from the Colony.

"'His Excellency brought the matter before the Unofficial Members of the Legislative Council residing in Singapore on the 12th August, 1916, and it was then decided that the Government was prepared on the conditions referred to in the resolution of the 12th August to contribute dollar for dollar as against subscriptions made by estates in the Colony to the Federated Malay States Relief Fund.'

"3. It will be seen from this statement of facts that the Colonial Government had never refused to contribute dollar for dollar for the purpose mentioned; it is unfortunate, if the report published in the paper is incorrect, that it was not contradicted, and if correct still more unfortunate that the Secretary should have made a statement so contrary to fact.

"I have, etc.,
"(Sd.) H. N. Marriott,
"*Acting Secretary to the High Commissioner for the Malay States.*

"The Secretary,
"Planters' Association of Malaya."

"KUALA LUMPUR,
"*30th September, 1916.*

"SIR,

"I have the honour to acknowledge receipt of your letter 1,563 of the 11th inst.

"In reply I beg to refer you to letter 'War 271/16' dated 17th January, 1916, from the Colonial Secretary, replying to a letter from this Association dated 8th January, 1916, which after quoting the resolution contained in your para. 3, (i) continues: '*This resolution does not extend to any other fund.*'

"The Planters' Association of Malaya took this as a decision by the Government of the Straits Settlements that it could not promise to augment the funds being raised by the Association from its members who lived in the Colony in the same manner as it was prepared to augment the resources of the Prince of Wales' Fund. I have the honour to enclose a copy of our minutes (*see* page 21) from which you will observe that I commented on the correspondence exchanged in the following terms—'the Federated Malay States Government are contributing to their fund and the Colonial Government to the Prince of Wales' Fund.'

"When, therefore, we received information from the Honorary Secretary of the Federated Malay States War Relief Fund, that the Colonial Government had resolved to make contributions to our fund also as we had ventured to ask in our letter of 8th January, the Secretary was instructed to inform the members of our Association at their next meeting accordingly, so as to bring to their notice what we took to be the change in the intentions of the Government.

"The announcement to this effect at our meeting on 30th August was received with the greatest satisfaction and I believe that, in view of what I have written above, His Excellency will realize that the newspaper report of the proceedings, which was substantially correct, contained nothing derogatory to the Colonial Government or contrary to the facts. The record in our minutes, which will be given full publicity, reads as follows: (*vide* pp. 21/22 of minutes of 30th August, 1916.)

"Should His Excellency, however, be of opinion that this passage is 'unfortunate,' I shall be very glad if you will let me know in order that at our next meeting I may make from the Chair any explanation considered desirable.

"I have, etc.,
"(Sd.) W. DUNCAN,
"*Chairman.*

"SECRETARY TO THE HIGH COMMISSIONER
"FOR THE MALAY STATES,
"SINGAPORE."

"SINGAPORE,
"*5th October, 1916.*

"H.C.O. No. 1563/16.

"SIR,

"I have the honour to acknowledge receipt of your letter of 7th September, 1916, received on the 2nd instant, on the subject of the Planters' War Relief Fund.

"2. It appears that on the 8th January, 1916, the Secretary of your Association wrote to the Colonial Secretary, Straits Settlements, and asked him whether a resolution which your Association understood had been passed by the Legislative Council authorizing expenditure towards War Relief applied to the 'Planters' War Relief Fund for Malaya.'

"3. The answer was that the resolution, which approved of payment to the Relief Fund Committee, Singapore, did not extend to any other fund.

"4. The resolution, as correctly stated in the answer, extends to no other fund not even to the Penang and Malacca Relief Funds, but the Planters' Association on the receipt of the correct statement of fact as conveyed in the answer considered that it justified them in informing the public that the Colonial Government had decided not to contribute to the 'Planters' War Relief Fund.'

"5. I am to add that in the opinion of His Excellency the Association should have asked the Straits Settlements Government whether they were willing to subscribe instead of taking the action they did.

"I have, etc.,

"(Sd.) H. N. MARRIOTT,
"*Acting Secretary to the High Commissioner*
"*for the Malay States.*"

Mr. DUNCAN observes that it was clear from the correspondence that they had misunderstood the original attitude of the Colonial Government, a misunderstanding which he much regretted. He had all the more pleasure now in taking this opportunity of expressing this regret publicly and likewise their appreciation of the generous support the Colonial Government was giving to their Relief Fund.

The SECRETARY reports the amount of contributions to their fund received to date (since 1st April, 1916), as follows:

Batang Padang	$ 617.77
Batu Tiga	1,530.00
Central Perak	1,522.44
Kajang	1,017.00

Kapar	$ 2,001.70
Klang	3,750.00
Krian	1,242.54
Kuala Langat...	725.00
Kuala Lumpur	1,104.68
Kuala Selangor	1,419.49
Lower Perak	341.00
Negri Sembilan	2,052.90
Taiping	2,203.92
Ulu Selangor	1,532.05
Total F.M.S. ...	21,060.49
Penang and Province Wellesley ...	660.99
Johore	2,154.00
Kedah	482.66
Kelantan	820.39
Grand Total ...	$25,178.53

The SECRETARY also reports the receipt of the following information from the Hon. Secretary of the Federated Malay States War Relief Fund:

"KUALA LUMPUR,
"*12th October, 1916.*

"H. C. E. ZACHARIAS, ESQ.,
"KUALA LUMPUR.

"DEAR SIR,

"F.M.S. WAR FUND—No. 2 SCHEME.

"I enclose statement of the financial position of this fund in London as at 31st July, received from Sir William Taylor and which has been audited by Mr. W. F. Nutt. You will observe the total balance available in London was £10,499 8*s*.

Our funds locally at this date consist of:

$15,000.00 F.M.S. 6 per cent. War Loan.
11,873.95 with Chartered Bank.

$26,873.95

"Yours faithfully,
"F.M.S. WAR RELIEF FUND,
"(Sd.) H. P. CLODD,
"*Honorary Secretary.*

"FEDERATED MALAY STATES WAR RELIEF FUND, No. 2—STATEMENT OF ACCOUNT ON 1ST JULY, 1916.

Receipts.	Amount.			Payments.			Amount.		
	£	s.	d.				£	s.	d.
By remittances from Planters' Association of Malaya, including £500 per Rubber Growers' Association	4,213	8	4	To advance to Mr.....			25	0	0
				„ grant to Mr.....			20	0	0
„ contributions and donations from rubber companies and persons interested in the industry, per favour of Rubber Growers' Association	4,714	4	4	„ „ Mrs.....			50	0	0
				„ „ Mrs.....			30	0	0
				„ Contingent Expenses—Printing £1 - 12s., postages £1, and Bank charges 2s. 3d. ...			2	14	3
„ contributions and donations from rubber companies other than the above mentioned	170	15	6	„ Balance disposed of as follows:					
					£	s. d.			
„ contributions and donations from tin companies having their head offices in England and from individual directors of the same	1,013	4	0	Treasury bills held by Bank	8,000	0 0			
				On deposit at 7 days' sight	2,000	0 0			
				Current account	499	8 0			
							10,499	8	0
„ donations from individuals	64	2	0						
„ interest on Bank balances	17	5	0						
„ discount on Treasury bills held by Chartered Bank on account of the fund ...	434	3	1						
	10,627	2	3				10,627	2	3

"I certify that I have examined the above Balance Sheet and compared it with the Bank Cash Book and Vouchers and am of opinion that the Balance Sheet exhibits a true and correct position of the state of the fund.

"(Sd.) W. F. NUTT,
"*4th September, 1916.*"

"KUALA LUMPUR,
"*13th October, 1916.*

"DEAR SIR,

"F.M.S. WAR RELIEF—No. 2 SCHEME.

"I enclose copy of letter dated 14th ultimo from Sir William Taylor with regard to contributions from the Governments of the Straits Settlements and Johore, respectively.

"Yours faithfully,
"F.M.S. WAR RELIEF FUND,
"(Sd.) H. P. CLODD,
"*Honorary Secretary.*

"THE SECRETARY,
"PLANTER'S ASSOCIATION OF MALAYA."

"MALAY STATES INFORMATION AGENCY,
"88, CANNON STREET, LONDON, E.C.
"*14th September, 1916.*

"SIR,

"F.M.S. WAR RELIEF FUND—No. 2 SCHEME.

"I have the honour to acknowledge the receipt of your letter of the 11th August last.

"I am in receipt of communications from His Excellency, Sir Arthur Young, from which I learnt that the Government of the Straits Settlements and the Government of Johore will contribute dollar for dollar put up by estates in the Colony and in Johore on certain conditions.

"I am, etc.,
"(Sd.) W. TAYLOR.

"THE HONORARY SECRETARY,
"F.M.S. WAR RELIEF FUND."

"KUALA LUMPUR,
"*17th October, 1916.*

"DEAR SIR,

"F.M.S. WAR RELIEF FUND—No. 2 SCHEME.

"I beg to inform you that a remittance of $25,000 has been received from the Federated Malay States Government, representing one-half of the maximum authorized contribution from the Government to the No. 2 Scheme of this fund. I attach copy of letter dated 14th instant from the Under Secretary, Federated Malay States Government, with regard to the above payment.

"2. I am suggesting to the Central Committee of the Federated Malay States War Relief Fund that the amount be invested in the proposed War Loans Investment Trust of Malaya.

"Yours faithfully,
"F.M.S. War Relief Fund,
"(Sd.) H. P. Clodd,
"*Honorary Secretary.*

"The Secretary,
"Planter's Association of Malaya."

"Kuala Lumpur,
"*14th October, 1916.*

"No. 4286/16.

"Sir,

"I am directed to forward to you herewith cheque for $25,000 being one-half af the maximum authorized contribution from the Government of the Federated Malay States for the relief of those wounded or disabled by sickness in the war, or the relief of dependents of those killed in the war.

"2. As you are aware, the condition on which the Government contribution is made is that it should equal—subject to the maximum of $50,000, the amount actually expended on the objects stated above by the Federated Malay States War Relief Fund Committee out of its own funds. I am, therefore, to point out that before a further contribution can be made by Government it will be incumbent on the Committee to furnish an account showing the amounts actually expended on the objects stated.

"I have, etc.,
"(Sd.) M. S. H. McArthur,
"*Under Secretary, F.M.S.*

"The Honorary Secretary,
"F.M.S. War Relief Fund.
"Kuala Lumpur."

The Secretary further reports the issue of a circular in connection with the "Star and Garter Hospital" Fund.

To date he had received from

Batu Tiga District	$ 30
Dindings	10
Johore	100
	$140

7.—RUBBER THEFTS.

The SECRETARY submits the following summary of cases reported during August and September:

RUBBER THEFTS DURING AUGUST.

Gula Kalumpong	Reported.	
Caledonia ...	Two cases of rubber stolen from junk on transport to Penang on 2nd August	No trace
Bertam Estate ...	Found in three different places, coagulated latex weighing from 15-22 lbs., awaiting an opportunity for removal	No arrests
Lunas R. Estates	Six hundred trees tapped on the night of the 13th August and latex stolen	"
Sungei Klah ...	Chinaman caught buying lump rubber	Dollars twenty-five or one month rigorous imprisonment
Narborough ...	Chinaman caught in unlawful possession of earth scrap	One month rigorous imprisonment
Chengai ...	Several Chinamen pursued, after frequent signs of earth scrap being gathered during moonlight nights; some 60 lbs. earth scrap was found scattered in their flight, but they were not caught.	
Kajang D.P.A.	(1) Various cases of trees damaged by night tapping, not done so often now, but sometimes by full moon. When done there are, roughly, some 500 trees tapped. Watchmen and others sent out constantly to trap the thieves, but have had no success.	
	(2) About 600 stumps one year old damaged	No trace
Haron Estate ...	On 10th August, 300 trees were tapped at night and badly wounded	No arrests

Perhentian Tinggi	Six Tamil coolies from Terentang Estate at work collecting ground scrap, accused of having crossed from their estate and gathered scrap on Perhentian Tinggi Estate. Accused denied charge and stated that being new coolies they had crossed estate boundary in ignorance after their work was completed	Four of accused convicted and fined $12 each and two females acquitted
Kuala Pilah District	(1) Sixteen pieces sheet rubber, value $32, stolen, complainant's coolies (Hylams) and sold to rubber buyer (Hokien). Accused could not be found. Rubber buyer charged with buying rubber without delivery of a written authority from landowner, section 9 (i), punishable section 13, Enactment 5/09 and discharged—pleaded his brother newly from China bought it on production by accused thief of "License to treat" which complainant (Hylam) said he kept in his pocket but that it might have been stolen from his pocket and put back. Rubber was returned to complainant.	
	(2) On 6th August, theft of scrap rubber from store, value $50. Complainant Chinese, accused unknown, not recovered.	
	(3) 29th August, 1916, under section 3 (i), 13, Enactment 5/09, a small Hokien shopkeeper, two miles from Kuala Pilah, owns 500 trees tappable in midst of small and medium private-owned estates of Japanese, Chetties, etc., suspected of buying stolen scrap from Malay coolies. I (Inspector) tied thread in three pieces of scrap and gave it to a local Malay informer to sell to accused at 9 p.m. Accused bought it. I—(*i.e.*	Fined $250, buying without license

	Inspector) entered shop at once, found cash on table and marked scrap in a room at rear of shop. Two rubber books in Kuala Pilah showed he had sold unusual large quantity of scraps within August. Convicted.	

RUBBER THEFTS DURING SEPTEMBER.

Lunas R. Estates	Three hundred trees tapped at night on the 16th.	No arrests
Bertam Estate ...	Malay tapper caught placing part of his latex in a tin buried in the ground.	One month imprisonment
Kajang District	(1) Four hundred trees tapped, all more or less damaged, on 4th September. (2) On 12th September, 1916, 200 trees tapped on edge of main road, trees dripping at daybreak.	
Rasak Estate ...	On 10th September, at midnight, Chinaman caught with a bucket of latex having tapped and badly damaged 200 rubber trees. Convicted of (1) theft of latex and (2) damage of trees.	Six months for each offence, rigorous imprisonment
Sungei Rengam	Four Chinamen, accused of theft of 1,500 rubber stumps. Convicted, but have appealed against the sentence.	Three months' rigorous imprisonment
Linggi Estate ...	Tan Burok (Hokien) and Hoh Ah Hoh, accused of scrap rubber, value about $10, on 24th September, 1916, at 3.30 p.m., section 379 P.C.	Three months' rigorous imprisonment each
Port Dickson ...	Lee Kwee charged of one katty of rubber scrap which was found concealed on estate.	Acquitted
Kampong Batu	(1) Mat Taib bin Judin and (2) Udin bin Awang accused of stealing on 14th October, 1916, 3 katties of bark rubber, value $1.50, the property of Kampong Batu Estate.	No. 1 discharged; No. 2, three months' rigorous imprisonment

New Estate	Labu	Abdul Rahaman, on 13th September, 1916, at New Labu Estate, did commit theft of latex rubber, value for about $40, section 379 P.C.	Six months' rigorous imprisonment
		(2) Mischief by cutting 315 trees, value at $60, section 427 P.C.	One month rigorous imprisonment

The SECRETARY draws attention to a Draft Enactment, gazetted on 26th September, 1916, to be called the "Federal Rubber Dealers Amendment Enactment." This Bill, however, was a purely formal one, necessitated by the fact that, as the principal Enactment was at present worded, auction sales of rubber were technically illegal.

The SECRETARY reports that he has been in correspondence with the Federated Malay States Chamber of Commerce on the same subject; and also submits the following resolution passed by the Central Perak Planters' Association: "That in the opinion of the Association, rubber stealing is seriously on the increase and that the attention of the Government be again directed to this fact, with a view to increasing sentences on conviction and more closely regulating licences."

Mr. DUNCAN regrets that on this question their request to Government for co-operation and protection had met with such a cold reception, that it would appear futile to approach Government again. The most that the Association had asked was for a Committee to consider the question. Their advances had been categorically rejected but considering the importance of the interests at stake, they could not afford to let the matter rest there. For years, legislation had been in force to control the tin-ore trade, and he could not see why Government did not proceed on the same lines with regard to rubber. For the first time in history rubber produced in 1916 had exceeded tin by some $32,000,000. Figures went to prove the importance of the industry, and were also proof of its claim to the protection of Government.

Seeing the unsympathetic attitude of the local Government, he would, therefore, propose that the meeting empower the Standing Committee to approach the Rubber Growers' Association for assistance on the subject and co-operation in representing matters to the Secretary of State for the Colonies. Here they had been repelled at every advance, and instead of wasting time they would now have to present their case in London. (Applause.)

Mr. TAYLER seconds the proposal, which is carried unanimously.

8.—CHINESE LABOUR.

Mr. McCulloch begs to move the resolution, placed on the agenda by the Standing Committee, *viz.*:

> "That a special committee be appointed to go into the whole matter and formulate a scheme for the approval of the Planters' Association of Malaya, such Committee to consist of eight members, of whom the Federated Malay States Chamber of Mines be invited to appoint one of their Chinese and one of their European members, that the Government be invited to detail the Controller of Labour, and that the Planters' Association of Malaya appoint four representatives of their own and in addition invite one Chinese planter to serve on the Committee."

The function of this Committee would be to go thoroughly into this question, to furnish a report thereon and submit same to the Association for consideration. As regards the constitution of the Committee, he would suggest that the four Planters' Association of Malaya representatives consist of two members from Negri Sembilan, one from Perak and one from Kajang.

The general idea regarding Chinese labour was, that there was a great shortage. He was not too sure that that idea was correct. They had about 17,500 Chinese on estates in Negri Sembilan, but they were restless and moving constantly from estate to estate, raising wages all the time. The great desirability was to get Chinese agricultural labour to settle down in this country with their families, but that was impossible, until they had a proper recruiting method. There was another aspect of the question—the money that was sent annually from these States to China. From one source in Negri Sembilan alone $100,000 a month was being sent to China and there was a good deal more money going from others. All this money could be retained in this country, if the Chinese only settled down here for good with their wives and children. They surely ought to make every effort to prevent this money and with it the cooly from leaving this country. But this could never be done, if they did not get a steady influx of women. It was also a known fact, that in districts, where there were a reasonable number of Chinese women, wages were lower than where there were no Chinese women.

Mr. Bruce seconds the motion.

Mr. Tayler opposes the motion, questioning whether it was time for the Planters' Association of Malaya to consider the matter and expressing the view that they should not ask for Government assistance in view of their experience of other Committees. He would also refer members to a special committee of planters, which had gone into the matter in 1911 and had presented an exhaustive and interesting report. The High Commissioner had

then considered that the Chinese must be exempted from any scheme placing them on the same basis as the Tamils until at least the coolies on estates were equal in numbers to those on the mines, and the latter at present outnumbered the former by about four to one. He does not see any reason for thinking that the High Commissioner's views had since changed. He further submits that to place the Chinese on the same basis as the Tamils was utterly impossible owing to the vast difference between their national characteristics. The whole thing had been rushed and he hoped the meeting would not pass the resolution now.

Mr. BUYERS says that Johore was very strongly in favour of the proposal that Chinese labour should be made available under the same conditions as Tamil labour.

Mr. HUSON thinks the best antidote against present Chinese troubles was to import more Tamils. Besides, Tamils remitted their savings to India, a British country, instead of to China, a foreign nation, as the Chinese did.

Mr. DUNCAN observes that Chinese were employed in districts where, owing to the health conditions, it was difficult to get and keep Tamils. He, however, did not see how the Government could take action in China similar to that taken in India. The proposal, however, did not put forward what should be done but appointed a special committee to go into the matter. He did not think that would commit either the Association or the Government.

The motion is then put to the meeting and results in eight votes for and the same number against it. The Chairman, casting his vote in favour of the proposal, declares the motion carried.

9.—BAGAN DATOH.

Mr. CRUICKSHANK moves on behalf of planters in the Bagan Datoh District: "The present system of outlet drains and watergates in the Bagan Datoh district being inadequate, thereby causing grave danger to the coconut cultivation, the assistance of the Planters' Association of Malaya is solicited, in bringing this state of affairs to the notice of the Government."

This was really a motion of the Lower Perak Planters' Association, but as he was intimately connected with the district in question, he had been asked to propose it on their behalf. The complaint was that, however well estate drains were upkept, the outlet drains, which were a Government affair, were not properly maintained, thereby endangering the existence of large areas under coconut cultivation. The matter was a most serious one, but Government was apparently unable to realize this. Something

would have to be done pretty quick and he hoped that the Planters Association of Malaya would succeed in getting a move on.

Mr. DUNCAN seconds the proposal. He could thoroughly bear out all that Mr. Cruickshank had said on the subject. He certainly thinks it would be advisable for the Secretary to bring the matter to the notice of the Under Secretary.

The proposal is carried.

10.—AGRICULTURAL CONFERENCE.

The SECRETARY reads the following letter:

"KUALA LUMPUR,
"*28th September, 1916.*

"No. 1 in 913/16.

"SIR,

"I have the honour to inform you that at a meeting of the Advisory Committee for this department on the 26th instant it was decided that I should approach the Planters' Association of Malaya with reference to the possibility of arranging for an Annual Agricultural Conference in Malaya.

"2. The Conference would presumably best be held in conjunction with the annual meeting of the Planters' Association of Malaya and would last for some few days.

"3. The idea would be to follow the business meeting by a series of others at which short papers would be contributed on subjects of interest to members by planters, officers of this department and others. The papers would be such as would lead to discussions.

"4. Visits to places of interest in the neighbourhood of the meeting might be arranged.

"5. I am sure that if such a Conference could be organized, it would prove of considerable benefit to agriculture generally in this country.

"6. Should the Planters' Association of Malaya approve of the idea I would suggest that a small Committee be appointed either to arrange matters or to enquire further into the suggestion. I need hardly say that I shall be very pleased to give any assistance in my power.

"I have, etc.,
"(Sd.) L. LEWTON-BRAIN,
"*Director of Agriculture.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

At the suggestion of the Chairman, the meeting expresses its approval in principle of the proposal made and refers the details to the Standing Committee.

11.—ELEPHANTS.

The SECRETARY reads the following letter:

"KUALA LUMPUR,
"*25th September, 1916.*

"No. 4923/15.

"SIR,

"With reference to the letter of the Chief Secretary to Government, No. 4923/15 of the 17th December last, on the subject of the complaints made of damage done by wild elephants in the Sungei Siput district of Perak, I am directed to inform you that the experimental system of patrols mentioned therein has been in force since April last.

"2. I am to enclose for the information of the Association a report on these patrols and am to say that, as the system of patrols is one which should be carried out by the owners of property affected, there seems no reason why they should be at public expense.

"They will not, therefore, be maintained by the Government after the first week in October, by which time the period fixed for the experiment will have expired.

"I have, etc.,

"(Sd.) M. S. H. MCARTHUR,
"*Under Secretary, F.M.S.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

REPORT OF FOREST DEPARTMENT PATROLS FOR THE PROTECTION OF PLANTATIONS FROM ELEPHANTS.

1. The patrolling of the district lying to the east of the Sungei Siput-Plus road, with the object of preventing wild elephants entering the rubber plantations, was begun early in April, 1916. To the end of August, $733 had been expended, which includes the cost of some small preliminary works, such as building huts and opening up paths.

2. When the work was undertaken the herds were located as soon as possible, and it was made one of the objects of the scheme that the movements of herds should be kept constantly under observation. It was desired, as far as possible, to keep the herds out of the Plus forest reserve. This was found not to be practically possible, but when they entered the reserve in any numbers they were harassed and kept on the move as much as possible, and the

patrols were instructed to keep specially careful watch on the reserve boundary at night in the neighbourhood of estates which were most liable to suffer damage. When the herds were out of the reserve altogether the patrols were reduced.

3. No patrols were armed. They were provided with Chinese crackers and bombs, and at night fires were sometimes lighted. The latter were probably more useful in inspiring courage in the patrols than fear in the elephants.

4. During the five months under report elephants have been frequently in the Plus forest reserve, but on one occasion only have they left it and entered estates. This occurred on 10th August, at 2 a.m., during heavy rain, when a small herd broke the fence of Sungei Reyla Estate.

The forester in charge reports that the patrol turned out at once and drove the elephants off before any damage was done. It is reported that two small trees only were broken.

5. The protection of the estates lying between the Plus forest reserve and the Sungei Siput-Plus road is a simple and inexpensive matter, and can easily be dealt with by the planters themselves on the lines of the present experiment.

6. The estates lying further south, such as Dovenby, Plang, Union Kongsi and Jalong have been damaged in the past by elephants entering from the forest on their east and south boundaries, as well as from the north. The patrolling of the Plus forest reserve, therefore, although affording some protection, does not ensure them from attack. There seems to be no reason why planters in this locality should not combine and organize a general patrol to keep the herd under observation, and take special precautions on individual estates when it is known that elephants are in the vicinity.

7. To the expenditure mentioned in para. 1, should be added the pay of a reliable headman. A forester has been specially detailed to supervise the temporary work.

(Sd.) B. H. F. Barnard,
Deputy Conservator of Forests, Perak.

Mr. Huson disclaims any further financial interest in the question but still holds the view that, since the Government had a game reserve, the Government had also the moral obligation of maintaining these patrols, which had been found so effective.

Mr. McCulloch suggests that the Secretary thank the Government for the experiment, but add that the Association could not agree to the principle of making individual planters responsible for protecting their estates against the damage made by elephants.

Agreed to.

12.—WAR TAXATION.

The SECRETARY reads the following letter:

"MALAY PENINSULA AGRICULTURAL
"ASSOCIATION, PENANG.
"*17th October, 1916.*

"DEAR SIR,

"We are instructed to hand you the following extract from the minutes of the committee meeting held on the 14th instant for your information:

'PROPOSED INCREASE IN DUTY.—Mr. DUNCAN refers to the Hon'ble Mr. E. Macfadyen's notice of motion covering an increase in the duty on rubber exported from the Federated Malay States, by the introduction of a special war tax of $1 per pikul over and above the customary duty, and states his strong disapproval of the movement, inasmuch, as in his belief, the suggested extra tax will fall chiefly on companies who are already, or will shortly be, large contributors to the cost of the war through the medium of the excess profits tax. Various additional reasons are set out by members present and it is finally unanimously resolved that the meeting is opposed to the proposed new tax in its present form for the reason set forward by Mr. Duncan.'

"Yours faithfully,
"(Sd.) KENNEDY & Co.,
"*Secretaries.*

"THE SECRETARY,
"PLANTERS' ASSOCIATION OF MALAYA."

Mr. DUNCAN is sure that all of them will have followed with the closest interest the rumours and statements which have of late been current, relative to a proposal to raise money in the Colony and Federated Malay States to be sent in the name of the inhabitants of British Malaya as a gift to the British Government towards the prosecution of the present war to a successful end. He was not aware that any purely official pronouncements had been made as indicating the methods to be adopted to raise the sum required and in the absence of such they could only gauge Government intentions by letters and statements which had appeared in the public press and which purported to give the views of different individuals and corporations. A perusal of the views recorded left one with the impression that while the majority of loyal subjects of the Empire residing in the country are not averse to the imposition

of special war taxation, a large proportion of them seem to look with horror on any proposal, the carrying out of which would affect their own pockets. The suggested forms of taxation have been coldly received by those who would be affected by them and the only concrete proposal put forward has been that by the Hon'ble Mr. Macfadyen—*viz.*, an increase in the export duty on tin and rubber. So far as one can gather, this proposal had been listened to with more sympathy than many others, and the reason of that might be that, in so far as rubber in any case was concerned, something approximating to 80 per cent. of it would be payable by the shareholders in sterling rubber companies who pay a high rate of income-tax on their dividends, and in most cases their share of an excess profit tax as well. Mr. Macfadyen had, in the meantime, withdrawn the proposal which he was to have moved at the next meeting of the Federal Council which will be substituted by a motion by Government to the effect that it will appoint a Committee to advise on the sums to be raised as war taxation and the best ways of raising it. This, so far as planters are concerned, was satisfactory in that it indicated that Government are prepared to consider other methods of raising money. In regard to raising the duty on rubber, he personally was not averse to an increase and thinks that it is the opinion of a large proportion of those concerned either in local companies or in sterling concerns. Everybody had to do all in his power to assist the Empire in finishing this war. The rubber industry here was rapidly growing. The value of the rubber exports from the Federated Malay States last year was about 93 million dollars as against 53 million dollars, the value of tin. The duty obtained from rubber was, of course, smaller in proportion than that derived from tin, three million dollars as compared with seven million dollars. Taking, moreover, into consideration the ability of the rubber industry to pay additional tax he did not think that any shareholder would refuse to pay. However this might be; any duty that would be levied, should be levied in a spirit of equity. As far as they were concerned it was for them not so much to propose how this additional tax should be imposed but how such tax would affect them. He, for one, was not adverse to an additional duty on rubber, provided other dutiable articles did not escape taxation.

He would now beg to propose that "While the rubber industry in the Federated Malay States would not shirk its share of special taxation for the help of the Home Government during war time it submits that it is essential that any new war taxation should be carefully considered with a view to its equitable distribution over all revenue producing interests."

Mr. Huson enquires whether it would not be more advisable to discuss this motion after the conclusions of the Government Committee had been made public.

Mr. MILNE begs to second Mr. Duncan's proposal. He takes it that the Chairman quite agrees that rubber can well afford to pay an additional duty and that rubber planters should not shirk their responsibilities but that he objects on the principle of equity to the *whole* burden being placed on the rubber industry.

The proposal is then put to the meeting and carried unanimously.

13.—ALIENATION OF LARGE AREAS.

The SECRETARY reports the receipt of the following resolutions:

From the Lower Perak Planters' Association: "That this Association views with apprehension the proposed alienation of additional large areas for agricultural purposes, such alienation being detrimental to the interests of the planting community and of small native holders," and from the Central Perak Planters' Association: "That this Association is not in favour of additional large areas (as we understand being applied for) being alienated under existing circumstances."

Mr. DUNCAN observes that the time was rather advanced and suggests that this matter be placed on the agenda of the next meeting.

This is agreed to and the meeting terminates at 1.15 p.m.

H. C. E. ZACHARIAS,
Secretary.

Exports of Rubber from British Malaya (other than F.M.S.).

State.	Month.	Quantity.
		lbs.
Johore	September-October...	6,226,424
Kelantan	August „ ...	706,592$\frac{3}{16}$
Kedah	September-October...	774,221$\frac{1}{3}$
Perlis	„ „ ...	1,628$\frac{2}{3}$
British N. Borneo ...	October	461,659
Brunei	„	24,492

FEDERATED MALAY STATES.

Comparative Statement of Cultivated Rubber Exported, with Value and Duty Collected thereon, during the Years 1916 and 1915.

Destination.	Exported during October, 1916.	Previously.	Total export during the year.	Export during similar period of previous year.	Increase.	Decrease.	Value of rubber exported, 1916.	Duty collected, 1916, to date.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	$	$ c.
Straits Settlements ...	4,326.67	32,013.88	36,340.55	23,397.65	12,942.90	...	85,993,366	
United Kingdom ...	1,154.13	10,701.13	11,855.26	10,730.73	1,124.53	...	28,487,456	
Continent of Europe ...	...	...	...	8.00	...	8.00	...	3,103,336 75
Ceylon	39.01	552.98	591.99	545.75	46.24	...	1,486,564	
Other Countries ...	448.61	1,035.04	1,483.65	95.07	1,388.58	...	3,259,939	
Total ...	5,968.42	44,303.03	50,271.45	34,777.20	15,502.25	8.00	119,227,325	3,103,336 75

KUALA LUMPUR,
7th November, 1916.

E. BURNSIDE,
Acting Commissioner, Trade and Customs, F.M.S.

FEDERATED MALAY STATES.

Comparative Statement of Cultivated Rubber Exported, with Value and Duty Collected thereon, during the Years 1916 and 1915.

Destination.	Exported during November, 1916.	Previously.	Total export during the year.	Export during similar period of previous year.	Increase.	Decrease.	Value of rubber exported, 1916.	Value of rubber exported during similar period of previous year.	Duty collected, 1916, to date.	Duty collected during similar period of previous year.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	$	$	$ c.	$ c.
Straits Settlements ...	4,958.60	36,340.55	41,299.15	26,892.89	14,406.26	...	96,336,578	49,418,418		
United Kingdom ...	1,535.69	11,855.26	13,390.95	11,776.64	1,614.31	...	31,690,642	23,515,841		
Continent of Europe	...	...	...	8.00	...	8.00	...	15,880	3,468,189 49	2,037,074 57
Ceylon	76.40	591.99	668.39	619.08	49.31	...	1,645,916	1,237,553		
Other Countries ...	205.28	1,483.65	1,688.93	116.11	1,572.82	...	3,688,110	226,575		
Total ...	6,775.97	50,271.45	57,047.42	39,412.72	17,642.70	8.00	133,361,246	74,414,267	3,468,189 49	2,037,074 57

KUALA LUMPUR,
6th December, 1916.

E. BURNSIDE,
Acting Commissioner, Trade and Customs, F.M.S.

Abstract of Meteorological Readings in the various Districts of the state of Malaya for the month of October, 1916.

District.	Mean Barometrical Pressure at 32° Fah.	Maximum in Sun.	Temperature.				Hygrometer.				Prevailing Direction of Winds.	Total Rainfall.	Greatest Rainfall during 24 hours.
			Mean Dry Bulb.	Maximum.	Minimum.	Range.	Mean Wet Bulb.	Vapour Tension.	Dew Point.	Humidity.			
Kelantan, Kota Bharu	...	133.0	80.4	89.09	73.38	15.71	75.8	.804	72.7	77 %	...	10.65	3.53
Pahang, Kuala Lipis	...	...	79.4	89.8	72.3	17.5	76.3	...	...	...	...	9.96	1.5
Johore, Johore Bharu	...	...	...	89.29	73.98	15.31	...	...	...	...	...	7.78	...
Singapore, Kandang Kerbau ...	29.776	159.5	83.2	80.04	75.2	5.2	77.6	.866	...	77.	...	7.77	1.88
Malacca, Durian Daun	29.803	142.5	82.4	86.4	72.4	14.	78.8	.934	...	85.	S.W.	1.15	.38
Negri Sembilan, Seremban ...	...	153.8	79.4	89.4	72.0	17.4	74.6	.774	71.4	77.9	N.W.	11.74	3.80
„ Kuala Pilah ...	...	142.5	81.8	90.6	72.7	17.9	78.0	.892	75.6	82.2	...	7.40	2.53
„ Port Dickson...	...	119.9	81.0	86.5	74.0	12.5	76.9	.848	74.3	80.3	...	10.55	1.17
Selangor, Kuala Lumpur ...	29.761	138.0	81.1	88.1	73.9	14.2	76.9	.854	74.4	81.	N.E.	8.16	1.63
„ Klang...	...	...	80.1	85.6	73.6	12.0	76.2	...	...	...	...	5.29	1.03
„ Kuala Selangor ...	...	...	...	88.2	75.0	13.2	...	...	...	...	...	5.41	1.13
„ Rawang	...	...	...	91.7	...	...	...	...	...	...	...	10.46	2.42
Perak, Telok Anson	...	...	80.91	91.	69.	22.	77.24	.887	...	85.	...	11.29	1.81
„ Ipoh	...	...	81.28	94.	71.	23.	76.38	.843	73.80	80.	...	10.07	1.77
„ Taiping	...	118.	81.02	92.	71.	21.	76.50	.853	...	80.	...	11.37	4.21
„ The Cottage	...	...	...	...	...	...	...	...	...	...	...	48.34	4.72
„ Parit Buntar	...	...	82.37	92.	71.	21.	77.84	.892	...	81.	...	11.90	2.91
Penang, Georgetown	29.873	140.	79.4	87.5	72.7	14.8	77.7	.889	75.8	81.6	N.W.	22.61	4.48
Kedah, Alor Star	...	...	...	...	...	...	...	...	...	...	...	14.62	2.32
Perlis, Perlis	...	...	...	86.51	73.48	13.03	...	...	...	...	...	9.51	13.55